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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,663	04/16/2004	Dai Hyun Kim	HI-0197	8484

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EXAMINER

HOLTON, STEVEN E

ART UNIT	PAPER NUMBER
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2629

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/825,663

Applicant(s)

KIM, DAI HYUN

Examiner

Steven E. Holton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-20 is/are rejected.
- 7) ☒ Claim(s) 11 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

The last sentence in paragraph 54, is confusing and difficult to understand. The sentence appears to lack a verb in the phrase 'if an odd frame and an even frame in each frame period'. Further the phrase 'the light emission centers of both frames are not identical to each other due to sub-fields of both frames thereby flickering, which have brightness weights different from each other.' Is very difficult to understand.

Paragraph 64, top of page 19. The first full sentence recites the shifting of the first frame to the left (earlier in time) but then states that the light emission center "is also shifted right". The light emission center is shifted left along with the frame.

Paragraph 67, the third sentence; paragraph 79, the third sentence; and paragraph 82, the third sentence, all recite the same error as in the previous objection. The light emission is said to shift right when it is shifted left.

Paragraph 82, top of page 25, the final sentence of the paragraph is difficult to understand. It appears to state that when the light emission centers are identical so that flickering will no longer enhance the image qualities. The Examiner believes the sentence is intended to state that matching light emission centers eliminates flickering and therefore enhances brightness and improves picture quality.

Appropriate correction is required.

Claim Objections

2. Claims 1, 5, 6, 7, 12, 13, 16, 19, and 20 are objected to because of the following informalities:

Regarding claims 1, 7, and 16, the abbreviation 'PDP' in the preamble of the claims should be spelled out as "plasma display panel" to remove the chance of misunderstanding what the abbreviation is used to describe.

Regarding claims 5, 12, and 19, the claims recite varying frame periods based "on height of an input gray level". The Examiner notes that an input gray level does not have a 'height' but rather a level or a value. That is, a gray level is a level used to measure pixel level between white and black as part of the display. This property does not have a vertical height, but rather a number value used to define the color relative to the scale. The Examiner recommends replacing the 'height' term with 'level' or some similar term.

Regarding claims 6, 13, and 20, the claims recite varying frame periods based "on height of an average picture level." This is similar to claims 5, 12, and 19, in that the picture level does not have a measurable vertical height, but rather an average picture brightness level. This is a number value to measure the average level of brightness of an image between totally white and totally dark. The Examiner recommends using brightness and level or value as part of an amended claim to provide a clearer definition of the invention. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 14 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 14 and 15, the claims recite changing frame periods and when a frame period is changed, "the frame period is shifted left [right]". A frame period is an interval of time when an image is displayed. It is unclear how a time interval is moved or shifted in any direction such as left or right because the frame period is not a physical object. Further, the claim states the frame period is 'arranged'. It is unclear how the frame period is arranged. Are they arranged by duration? Re-ordered with longer periods before shorter periods? The specification shows the frame periods being increased and decreased based on odd and even determinations, but the arrangement of frame periods is not altered in the order they occur.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-10, 12-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Shigeta et al. (USPN: 6646625), hereinafter Shigeta.

Regarding claim 1, Shigeta discloses a plasma display panel that displays information based on first and second frame periods (Figs. 25-27; drive modes A and B). Shigeta further discloses the different frame periods having different weighted fields (Figs. 25-27) and then varying the fields differently from each other (col. 19, line 40 – col. 20, line 43). The first frame is shifted in time to match the light emission centers of the different frames to eliminate flickering and enhance the displayed image. Shigeta does not expressly state that the frame periods are defined by the vertical synchronization signal, but it is well known in the art that the vertical synchronization signal is used to signal the beginning of each frame within a display device. Therefore, it is inherent that Shigeta is using the vertical synchronization signal to provide signal of the beginning and ending of the frame periods used with the display.

This way, it is not clear that it is inherent. Just start by saying that it is inherent because the v-sync signal is inherently used to signal...

Regarding claim 2, Shigeta discloses varying the first and second periods based on the brightness weights held in each frame period (col. 19, line 40 – col. 20, line 43). The weights of drive mode A are shifted differently than the weights of drive mode B to match the centers of light emission.

Regarding claim 3, Shigeta keeps the sum of the first and second frame periods constant in Figs. 26 and 27. The field periods for modes A and B are the same and therefore the sum of the periods is constant after the shifting occurs.

Regarding claim 4, Shigeta shifts the first and second frames pulses as the frame periods are varied (col. 20, lines 11-26). Based on different levels of brightness the amount of time change can be altered based on the brightness level so that light centers are always aligned rather than using a single constant time shift.

Regarding claims 5 and 6, Shigeta discloses shifting the first and second frame pulses based on the average gray level or brightness level of the image (col. 20, lines 11-26).

Regarding claims 7 and 16, which are drawn to a method of operation and associated apparatus, Shigeta discloses a method of driving a plasma display device that determines a frame period based for a first and second frames and then changes the frame period and shifting the frames within the frame period based on varying frame period (Figs. 25-27; col. 19, line 40 – col. 20, line 43).

Regarding claims 8 and 17, Shigeta inherently uses the vertical synchronization signal as the signal to determine the beginning and end of a frame period interval. The

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vertical synchronization signal is commonly used to mark the beginning and ends of a frame period within the art.

Regarding claim 9, Shigeta provides first and second frames within first and second frame periods (Figs. 25-27; drive modes A and B).

Regarding claims 10 and 18, Shigeta determines the different driving modes into odd and even fields (Fig. 25; col. 19, lines 37-60).

Regarding claims 12, 13, 19, and 20, Shigeta discloses shifting the first and second frame pulses based on the average gray level or brightness level of the image (col. 20, lines 11-26).

Regarding claim 14, Shigeta discloses expanding a frame to activate at an earlier point in time (Fig 27; col. 20, lines 27-43). This shifting of the frame to activate at an earlier time is shifting the frame 'to the left' along the time axis.

Regarding claim 15, Shigeta discloses shifting a frame to a later portion of a frame period (Fig. 26; col. 19, line 64 – col. 20, line 26). This shifting of the frame to being at a later time is shifting the frame 'to the right' along the time axis.

Allowable Subject Matter

5. Claims 11 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

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The present invention is directed to a method of driving a plasma display panel. Claims 11 and 21 identify the uniquely distinct features increasing one frame period while relatively decreasing the next frame period or vice versa. The closest prior art, Shigeta (USPN: 6646625) discloses shifting and expanding the frames to match the center of emission of the frames, but keeps the first and second frame periods equal to each other rather than changing the relative length of each frame period and fails to anticipate or render the above underlined limitations obvious.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven E. Holton whose telephone number is (571) 272-7903. The examiner can normally be reached on M-F 8:30-5.

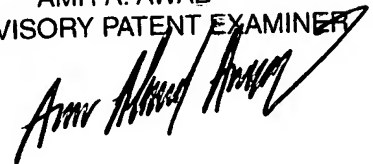
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steven E. Holton
Division 2629
March 1, 2007

AMR A. AWAD
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read 'Amr A. Awad', is written over the printed name and title of the Supervisory Patent Examiner.